# **Statement of Basis**

# Permit to Construct No. P-2008.0078 Project ID 61969

Clay Peak Municipal Solid Waste Landfill Payette, Idaho

Facility ID 075-00009

Final

August 24, 2018 Morrie Lewis Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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# ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC acceptable ambient concentrations

AACC acceptable ambient concentrations for carcinogens

Btu British thermal units CAA Clean Air Act

CAM Compliance Assurance Monitoring CEMS continuous emission monitoring systems

cfm cubic feet per minute

CFR Code of Federal Regulations

CMS continuous monitoring systems

 $\begin{array}{ccc} CO & carbon monoxide \\ CO_2 & carbon dioxide \end{array}$ 

COMS continuous opacity monitoring systems
DEQ Department of Environmental Quality

EL screening emission levels

EPA U.S. Environmental Protection Agency

HAP hazardous air pollutants

hr/yr hours per consecutive 12 calendar month period

IDAPA a numbering designation for all administrative rules in Idaho promulgated in accordance with the

Idaho Administrative Procedures Act

km kilometers
lb/hr pounds per hour
lb/qtr pound per quarter

MACT Maximum Achievable Control Technology

MMBtu million British thermal units MMscf million standard cubic feet

NAAOS National Ambient Air Quality Standard

NESHAP National Emission Standards for Hazardous Air Pollutants

NO<sub>2</sub> nitrogen dioxide NO<sub>x</sub> nitrogen oxides

NSPS New Source Performance Standards

PM particulate matter

 $PM_{2.5}$  particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers  $PM_{10}$  particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers

ppm parts per million

PSD Prevention of Significant Deterioration

PTC permit to construct PTE potential to emit

Rules Rules for the Control of Air Pollution in Idaho

scf standard cubic feet

SCL significant contribution limits SIP State Implementation Plan

SO<sub>2</sub> sulfur dioxide SO<sub>x</sub> sulfur oxides

T/day tons per calendar day

T/yr tons per consecutive 12 calendar month period

TAP toxic air pollutants U.S.C. United States Code

VOC volatile organic compounds

#### **FACILITY INFORMATION**

## Description

The Clay Peak Municipal Solid Waste Landfill (Clay Peak) is owned and operated by Payette County. The landfill commenced operations in October 1993. The landfill is a portion of a rural 1,340 acre site of semi-arid mountainous terrain. The landfill has a proposed maximum design capacity of more than 3.0 megagrams. On average, the landfill receives 300 to 550 tons of garbage per day. At Clay Peak, it is estimated that approximately four acres of surface soil is disturbed at any one time during normal operations. This cumulative four acres involves three main activities at the landfill:

- Covering garbage with dirt at the working face of the landfill,
- Surface mining of dirt for use as cover, and
- Aerating compost rows and screening compost.

Water trucks are used to suppress fugitive dust emissions from vehicles driving on unpaved roads at the landfill.

Flares are used at Clay Peak to combust landfill gas. Flares are connected to passively-fed gas collection systems that consist of perforated PVC pipes running directly into the landfill.

Seven flares are located at Cell No. 1. Cell No. 1 reached its waste acceptance capacity at nearly one million tons and was closed in 2010, requiring construction of Cell No. 2. Six flares will be operated at Cell No. 2 (two for 2018, two for 2019, and two for 2020).

Each flare has a solar panel that charges a battery pack. The batteries are used to power an arc which continuously fires at the discharge of the flare. This system ensures that the flares continuously combust the collected landfill gas. The landfill gas flow rates are variable. When there is a sufficient gas flow rate, the arc ignites the gas within the flare.

The landfill gas is composed of approximately 55% methane (CH<sub>4</sub>), 40 % carbon dioxide (CO<sub>2</sub>), 5% nitrogen (N<sub>2</sub>), and a small amount of non-methane organic compounds (NMOC). Within the NMOC are some hazardous air pollutants (HAP) and toxic air pollutants (TAP). A trace amount of hydrogen sulfide (H<sub>2</sub>S) gas is also found in the landfill gas.

# Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

December 16, 2008 P-2008.0078, modification to add three flares, permit status (A, but will

become S upon issuance of this permit)

February 27, 2004 P-020034, modification to add two flares and continue to operate two

previously PTC-exempt flares at Cell No. 1, permit status (S)

# Application Scope

This PTC is for a minor modification at an existing minor facility and Tier I source.

The applicant has proposed to:

• Install and operate six flares to combust landfill gas (LFG) from Cell No. 2.

# **Application Chronology**

November 28, 2017 DEQ received an application fee.

December 8, 2017 DEQ received an application.

December 20, 2017 – January 4, 2018 DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.

January 5, 2018 DEQ determined that the application was incomplete.

March 14, 2018 DEQ received supplemental information from the applicant.

April 13, 2018 DEQ determined that the application was complete.

May 14, 2018 DEQ made available the draft permit and statement of basis for peer and

regional office review.

June 8, 2018 DEQ made available the draft permit and statement of basis for applicant

review.

June 25, 2018 DEQ received the permit processing fee.

July 18 – August 20, 2018 DEQ provided a public comment period on the proposed action.

August 24, 2018 DEQ issued the final permit and statement of basis.

### **TECHNICAL ANALYSIS**

## Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sou	ırce	Control Equipment					
5		NW 1.1 Landfill Ga Manufacturer: Model: Heat input capacity: Fuel: Installation Date:	s Flare Landfill Services Corp. CF-5 2.16 MMBtu/hr and 33 cfm LFG 2001				
		NW 1.2 Landfill Ga Manufacturer: Model: Heat input capacity: Fuel: Installation Date:	s Flare Landfill Services Corp. CF-5 2.16 MMBtu/hr and 33 cfm LFG 2004				
Municipal Waste Land Design capacity: Status:	1.07 megagrams (1.2 million tons) Closed 2010	Model:	Flare Landfill Services Corp. CF-5 2.16 MMBtu/hr and 33 cfm LFG 2001				
		Model: Heat input capacity:	Landfill Services Corp. CF-5 2.16 MMBtu/hr and 33 cfm LFG				
		Model: Heat input capacity:	Landfill Services Corp. CF-5 2.16 MMBtu/hr and 33 cfm LFG				

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Table 1 (continued)

Table 1	(continued)					
Source	Control Equipment					
Municipal Waste Landfill – Cell No. 1 Design capacity: 1.07 megagrams	SE 1.1 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG  Manufacture Date: 2007					
(1.2 million tons) Status: Closed 2010	SE 1.2 Landfill Gas Flare Manufacturer: Landfill Services Corp. Model: CF-5 Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Manufacture Date: 2008					
	NW 2.1 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2018					
	NW 2.2 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2019					
Municipal Waste Landfill – Cell No. 2  Design capacity: 2.0 megagrams	NW 2.3 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2020					
(2.2 million tons) Status: Active	NE 2.1 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm  Fuel: LFG  Installation Date: 2018					
	NE 2.2 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2019					
	NE 2.3 Landfill Gas Flare  Manufacturer: Landfill Services Corp.  Model: CF-5  Heat input capacity: 2.16 MMBtu/hr and 33 cfm Fuel: LFG Installation Date: 2020					

#### Emission Inventories

### **Potential to Emit**

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the LFG-fired flares (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant and HAP PTE were based on emission factors from AP-42 Section 2.4-5, LandGEM emission estimating software, and the design capacities of Cell No. 1 and Cell No. 2.

#### **Uncontrolled Potential to Emit**

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall <u>not</u> be treated as part of its design <u>since</u> the limitation or the effect it would have on emissions <u>is not</u> state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLL	LUTANTS (a)
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	NMOC	/ VOC
	lb/hr	T/yr
Cell No. 1 <sup>(a)</sup>	1.59	7.0
Cell No. 2 (b)	2.85	12.5
PTE Totals	4.44	19.5

- a) Maximum projected annual non-methane organic carbon (NM OC) emissions, in year 2011.
- Maximum projected annual non-methane organic carbon (NM OC) emissions, in year 2039 when the expected landfill life is met.

### Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

The following table presents the pre-project potential to emit for all criteria pollutants from all permitted emissions units at the facility as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Compilation of Air Pollutant Emission Factors, AP-42, Volume I, Fifth Edition (AP-42), Chapter 2 – Solid Waste Disposal, Office of Air Quality Planning and Standards Office of Air and Radiation (OAQPS), EPA, Draft October 2008.

Table 3 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS (a)(b)

Emission source	PM <sub>2.5</sub>	/PM <sub>10</sub>	SC	)2	NO	) <u>.</u>	С	O	V	OC .	NM	OC	L	ead
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
NW Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NW Flare 1.2	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NE Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NE Flare 1.2	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
SW Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
SE Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
SE Flare 1.2	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
Pre-Project Totals	0.15	0.66	0.02	0.1	0.4	1.7	0.5	2.0	0.5	2.1	0.5	2.10	0.0	0.00

a) Controlled average emission rates in pounds per hour and tons per year are annual averages, based on maximum projected annual landfill emissions in year 2011 for Cell No. 1.

### Post-Project Potential to Emit

Post-project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post-project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post-project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 4 POST-PROJECT EMISSION INCREASES OF CRITERIA POLLUTANTS (a)(b)

Emission source	PM <sub>2.5</sub>	/PM <sub>10</sub>	SC	)2	NO	$O_x$	C	0	V	OC .	NM	OC	Le	ead
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
NW Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NW Flare 1.2	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NE Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NE Flare 1.2	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
SW Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
SE Flare 1.1	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
SE Flare 1.2	0.021	0.094	0.003	0.02	0.055	0.242	0.065	0.29	0.068	0.30	0.068	0.30	0	0
NW Flare 2.1	0.034	0.147	0.004	0.02	0.087	0.382	0.103	0.45	0.107	0.47	0.107	0.47	0	0
NW Flare 2.2	0.034	0.147	0.004	0.02	0.087	0.382	0.103	0.45	0.107	0.47	0.107	0.47	0	0
NW Flare 2.3	0.034	0.147	0.004	0.02	0.087	0.382	0.103	0.45	0.107	0.47	0.107	0.47	0	0
NE Flare 2.1	0.034	0.147	0.004	0.02	0.087	0.382	0.103	0.45	0.107	0.47	0.107	0.47	0	0
NE Flare 2.2	0.034	0.147	0.004	0.02	0.087	0.382	0.103	0.45	0.107	0.47	0.107	0.47	0	0
NE Flare 2.3	0.034	0.147	0.004	0.02	0.087	0.382	0.103	0.45	0.107	0.47	0.107	0.47	0	0
Post-Project Totals	0.35	1.54	0.05	0.3	0.9	4.0	1.1	4.7	1.1	4.9	1.1	4.92	0.0	0.00

a) Controlled average emission rates in pounds per hour and tons per year are annual averages, based on maximum projected annual landfill emissions in year 2011 for Cell No. 1 and in year 2039 for Cell No. 2.

#### Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

b) Emissions from PTC-exempt engines are not included in this table, but are expected to have combined PTE at below regulatory concern (BRC) levels.

Emissions from PTC-exempt engines are not included in this table, but are expected to have combined PTE at below regulatory concern (BRC) levels.

The following table presents the post-project emission increases for all criteria pollutants from Cell No. 2 (and the facility-wide change in the potential to emit for criteria pollutants) as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 5 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS (a)

Emission source	PM <sub>2.5</sub>	/PM <sub>10</sub>	SC	)2	NO	$O_{x}$	С	O.	V	OC	NM	ос	L	ead
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.15	0.66	0.02	0.1	0.4	1.7	0.5	2.0	0.5	2.1	0.5	2.10	0.0	0.00
Post-Project Potential to Emit	0.35	1.54	0.05	0.3	0.9	4.0	1.1	4.7	1.1	4.9	1.1	4.92	0.0	0.00
Changes in Potential to Emit	0.20	0.88	0.03	0.2	0.5	2.3	0.6	2.7	0.6	2.8	0.6	2.82	0.0	0.00
BRC Thresholds <sup>2</sup>		1.0		4.0		4.0		10.0		4.0				0.06

a) Controlled average emission rate in pounds per hour and tons per year are annual averages, based on maximum projected annual landfill emissions in year 2011 for Cell No. 1 and in year 2039 for Cell No. 2.

Criteria pollutants (e.g., PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, CO, SO<sub>2</sub>, VOC, and lead) were compared to "below regulatory concern" (BRC) thresholds, defined as 10% of "significant" levels in IDAPA Section 006 in order to determine whether modeling was required, in accordance with DEQ's BRC "Policy on NAAQS Compliance Demonstration Requirements."

<sup>&</sup>lt;sup>2</sup> DEQ "Policy on NAAQS Compliance Demonstration Requirements" (2014ACF3) and IDAPA 58.01.01.210.20, respectively.

## **HAP and TAP Emission Increases**

A summary of the estimated PTE for project emission increases of hazardous air pollutants (HAP) and toxic air pollutants (TAP) are provided in the following tables.

Table 6 HAP PTE (a)

	Cell No. 2	Facility-Wide
НАР	PTE (T/yr)	PTE (T/yr)
1,1,1-Trichloroethane (methyl chloroform)	0.02	0.03
1,1,2,2-Tetrachloroethane	0.05	0.07
1,1-Dichloroethane (ethylidene dichloride)	0.07	0.09
1,1-Dichloroethene (vinylidene chloride)	0.01	0.01
1,2-Dichloroethane (ethylene dichloride)	0.02	0.03
1,2-Dichloropropane (propylene dichloride)	0.01	0.01
Acrylonitrile	0.09	0.12
Benzene	0.04	0.05
Carbon disulfide	0.02	0.03
Carbon tetrachloride	0.01	0.01
Carbonyl sulfide	0.01	0.01
Chlorobenzene	0.01	0.01
Chloroethane (ethyl chloride)	0.03	0.04
Chloroform	0.01	0.01
Chloromethane	0.02	0.03
Dichlorobenzene ( for para isomer)	0.01	0.01
Dichloromethane (methylene chloride)	0.31	0.42
Ethylbenzene	0.13	0.17
Ethylene dibromide	0.01	0.01
Hexane	0.15	0.20
Mercury (total)	0.0001	0.0001
Methyl ethyl ketone	0.13	0.17
Methyl isobutyl ketone	0.05	0.07
Perchloroethylene (tetrachloroethylene)	0.16	0.21
Toluene	0.92	1.23
Trichloroethylene (trichloroethene)	0.10	0.13
Vinyl chloride	0.12	-0.16
Xylenes	0.33	0.44
Total HAP	2.8	3.75
Maximum Individual HAP	0.9	1.21

a) Controlled average emission rates in tons per year are annual averages, based on maximum projected annual landfill emissions in year 2011 for Cell No. 1 and in year 2039 for Cell No. 2.

b) Emissions from PTC-exempt engines are not included in this table.

Table 7 CELL NO. 2 NON-HAP TAP EMISSION INCREASES

Non-Carcinogenic Toxic Air Pollutants	Average Emission Rates <sup>(a)</sup> (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Emissions Level? (Y/N)
Acetone	0.03	119	No
2-Propanol (isopropyl alcohol)	0.18	65.3	No
Hydrogen sulfide	0.07	0.933	No
Dichlorofluoromethane	0.02	2.67	No
Ethanol (ethyl alcohol)	0.07	125	No
Ethyl mercaptan (ethanethiol)	0.01	0.07	No
Methyl mercaptan	0.007	0.033	No
Pentane	0.02	118	No
Carcinogenic Toxic Air Pollutants	Average Emission Rates <sup>(a)</sup> (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Emissions Level? (Y/N)
1,2-Dichloroethylene	0.02	52.7	No

a) Controlled average emission rates in pounds per hour are annual averages, based on maximum projected annual landfill emissions in year 2011 for Cell No. 1 and in year 2039 for Cell No. 2.

For non-HAP TAP, none of the applicable emission screening levels (EL) were exceeded as a result of this project, and modeling was not required.

# Ambient Air Quality Impact Analyses

The estimated emission rates of PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, and TAP from this project were below applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline.<sup>3</sup> Refer to the Emission Inventories section for additional information concerning the emission inventories.

As described in the MACT/GACT Applicability (40 CFR 63) section, Cell No. 2 is subject to NESHAP Subpart AAAA. Because it is presumed that EPA evaluated the 187 HAPs when developing emission standards for new, modified or existing stationary sources regulated by 40 CFR Part 63 (NESHAP; including sources specifically exempted within the relevant Subpart), no further review was required under IDAPA 58.01.01.210 for TAP that are also HAP.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP).

Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

### **REGULATORY ANALYSIS**

## Attainment Designation (40 CFR 81.313)

Clay Peak is located in Payette County (AQCR 63) which is designated as unclassifiable/attainment for  $PM_{2,5}$ ,  $PM_{10}$ ,  $SO_2$ ,  $NO_x$ , CO, and ozone for federal and state criteria air pollutants. Reference 40 CFR 81.313.

## Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

- A = Use when any one HAP has actual or potential emissions ≥ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions ≥ 25 T/yr.
- SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits  $\geq 8$  T/yr of a single HAP or  $\geq 20$  T/yr of THAP.
- SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.
- B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold
- UNK = Class is unknown

#### For All Other Pollutants:

- A = Actual or potential emissions of a pollutant are > 100 T/yr.
- SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.
- SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.
- B = Actual and potential emissions are < 100 T/yr without permit restrictions.
- UNK = Class is unknown.

Table 8 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	1.54	1.54	100	В
$PM_{10}$	1.54	1.54	100	В
PM <sub>2.5</sub>	1.54	1.54	100	В
$SO_2$	0.3	0.3	100	В
$NO_x$	4.0	4.0	100	В
CO	4.7	4.7	100	В
VOC	4.9	4.9	100	В
HAP (single)	1.21	1.21	10	В
HAP (total)	3.75	3.75	25	В
Pb	0.00	0.00	100	В

# Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ...... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed new Cell No. 2 emissions sources. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

# Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ...... Tier II Operating Permit

The facility does not have and is not required to have a Tier II permit in accordance with IDAPA 58.01.01.401. Therefore, the requirements of IDAPA 58.01.01.401 were not applicable.

IDAPA 58.01.01.401 ...... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

# Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

In accordance with IDAPA 58.01.01.313.01.b and 40 CFR 60.752(b), the permittee must submit a complete application to DEQ for an initial Tier I operating permit within 12 months of becoming a Tier I source subject to 40 CFR 60, Subpart WWW.

Clay Peak has committed to applying for a T1 permit, and to including information concerning PTC-exempt equipment and federal regulatory applicability in the T1 application. Specific federally-applicable requirements will be incorporated into the T1 (refer to NSPS Applicability (40 CFR 60) and MACT/GACT Applicability (40 CFR 63) sections below for additional information regarding applicable requirements).

# PSD Classification (40 CFR 52.21)

40 CFR 52.21......Prevention of Significant Deterioration Of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source, not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore, in accordance with 40 CFR 52.21(a)(2), the PSD requirements do not apply.

# Rules for Control of Incinerators-Emissions Limits (IDAPA 58.01.01.785)

As detailed in the Statement for the prior permitting action, because the flares are not directly combusting refuse, they do not meet the definition of incinerator in IDAPA 58.01.01.006, and it was determined Section 785 emissions limits are therefore not applicable to the flares.

<sup>&</sup>quot;Engineer Responses to DEQ PTC Application Review for Clay Peak Landfill, Payette County, Idaho," HECO Engineers, March 14, 2018. (2018AAG590)

## Rules for the Control of Odors (IDAPA 58.01.01.775-776)

IDAPA 58.01.01.775-776......Rules for the Control of Odors

The facility is subject to the general restrictions for the control of odors. This requirement is incorporated as Permit Condition 2.4. Compliance with this limit is assured by complying with odor complaint requirements (Permit Condition 2.7).

# NSPS Applicability (40 CFR 60)

Because the facility has a municipal solid waste landfill that is an area source with a design capacity greater than 2.5 million megagrams, the facility is subject to the following NSPS (incorporated as Permit Condition 2.7):

• 40 CFR 60, Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills. DEQ is delegated this Subpart.

# **NESHAP Applicability (40 CFR 61)**

The facility is not subject to any NESHAP requirements in 40 CFR 61.

# MACT/GACT Applicability (40 CFR 63)

Because the facility has an active municipal solid waste landfill with a design capacity greater than 2.5 million megagrams, the facility is subject to the following area source NESHAP (incorporated as Permit Condition 2.8):

• 40 CFR 63, Subpart AAAA – National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills. DEQ is delegated this Subpart.

### Permit Conditions Review

This section describes those permit conditions that have been added, revised, or removed as a result of this permitting action. Although explicit emission limits for the proposed flares appeared in draft versions of this permit, DEQ determined that inclusion of these limits in the final permit was unnecessary because such limits were based on emissions estimates which could not readily be verified by source testing, and for which continuous compliance would rely upon requirements for proper operation and maintenance of the control equipment incorporated elsewhere in the permit (Permit Condition 2.4 and General Provision 3.2).

Revised Permit Conditions 1.4, 2.1, and 2.2 (Permit Conditions 1.4, 2.1, and 2.2 of P-2008.0078 issued 12/16/08)

Table 1.1 lists all sources of regulated emissions in this PTC.

Table 1.1 SUMMARY OF REGULATED SOURCES

Permit Section	Source Description	Emissions Controls
	LANDFILL GAS FLARE:  NW Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2001	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE:  NE Flare 1,1 - Landfill Services Corp., model CF-5 flares with a heat input rating of 2,160 MMBtu/hr installed in 2001	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE:  NW Flare 1.2 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2,160 MMBtu/hr installed in 2004	None (considered an emission control device when combusting landfill gas)
2,	LANDFILL GAS FLARE:  NE Flare 1.2 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2,160 MMBtu/hr installed in 2005	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: SW Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2.160 MMBtu/hr installed in 2007	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: SE Flare 1.1 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2,160 MMBtu/hr installed in 2007	None (considered an emission control device when combusting landfill gas)
	LANDFILL GAS FLARE: SE Flare 1.2 - Landfill Services Corp. model CF-5 flares with a heat input rating of 2,160 MMBtu/hr to be installed in 2008	None (considered an emission control device when combusting landfill gas)

Four existing flares and three proposed flares will be used at Clay Peak to combust landfill gas from the gas collection system. The four existing flares are connected to a manifold system which consists of perforated PVC pipes running directly from within landfill Cell No. 1. The flares are passively fed systems located on the periphery of Cell No. 1. The three proposed flares will be connected by a new manifold system to the existing flares. The manifold will service the existing PVC pipes and also the proposed gas collection wells that will be drilled across the north and south faces of Cell No. 1 will reach its waste acceptance capacity in 2009 at nearly one million tons of garbage.

Each flare has a solar panel that charges a battery pack. The batteries are used to power an arc which continuously fires at the discharge of the flare. This system ensures that the flares continuously combust the collected landfill gas. The landfill gas flow rates are variable. When there is a sufficient gas flow rate, the arc ignites the gas within the flare.

The landfill gas is composed of approximately 55% methane ( $CH_{4}$ ), 40% carbon dioxide ( $CO_{2}$ ), 5% nitrogen ( $N_{2}$ ), and a small amount of non-methane organic compounds (NMOC). Within the NMOC are some hazardous air pollutants (HAPs) and toxic air pollutants (TAPs). A trace amount of hydrogen sulfide ( $H_{2}S$ ) gas is also found in the landfill gas.

Particulate matter emissions from the flares are uncontrolled. The NMOC and methane are combusted by the flares at a temperature between 900 - 1,300 °F. The combusted gases have a residence time of 0.6 seconds at low flow and 0.3 seconds at high flow, and the flare achieves a destruction efficiency of greater than 98%.

Table 2.1 SEVEN LANDFILL GAS FLARES DESCRIPTION

Emissions Units/Processes	Emissions Units/Processes Emissions Control Device		
Landfill Gas Flare (NW Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NW FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832°F	
Landfill Gas Flare (NE Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NE FLARE 1,1 Exit height: 12,00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F	
Landfill Gas Flare (NW Flare 1.2)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NW FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832°F	
Landfill Gas Flare (NE Flare 1.2)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack NE FLARE 1.2 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832°F	
Landfill Gas Flare (SW Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack SW FLARE 1.1 Exit height: 12.00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832°F	
Landfill Gas Flare (SE Flare 1.1)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack SE FLARE 1,1 Exit height: 12,00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F	
Landfill Gas Flare (SE Flare 1.2)	N/A (Note: Is considered an emission control device when combusting biogas)	Exhaust stack SE FLARE 1,2 Exit height: 12,00 ft Exit diameter: N/A Exit flow rate: 30 cfm Exit temperature: 1,832 °F	

Process descriptions have been updated to include the proposed flares.

Removed Permit Condition 2.3 of P-2008.0078 issued 12/16/08

A person shall not discharge any air pollutant into the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as required by IDAPA 58.01.01.625. Opacity shall be determined by the procedures contained in IDAPA 58.01.01.625.

Facility-wide and generally-applicable opacity limits that will be incorporated into the required T1 Operating Permit for this landfill and associated generator engines were considered duplicative and have been removed.

Removed Permit Conditions 2.5 and 2.6 of P-2008.0078 issued 12/16/08

The permittee shall comply with the procedures and requirements of IDAPA 58.01.01.130-136 for excess emissions due to startup, shutdown, scheduled maintenance, safety measures, upsets and breakdowns.

The permittee shall comply with provisions of IDAPA 58.01.01.600-616, Rules for Control of Open Burning.

Facility-wide and generally-applicable excess emissions and open burning requirements that will be incorporated into the required T1 Operating Permit for this landfill were considered duplicative and have been removed. Excess emissions requirements are also incorporated in General Provision 3.11 of this permit.

Added Permit Conditions 2.7, 2.8, and 2.9

These permit conditions incorporate NSPS and NESHAP requirements in accordance with NSPS Subpart WWW and NESHAP Subpart AAAA. Applicable emission limits and requirements will be incorporated into the required T1 Operating permit, including applicable requirements for PTC-exempt emergency generator engines.<sup>4</sup>

#### **PUBLIC REVIEW**

# **Public Comment Opportunity**

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01. During this time, there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

### **Public Comment Period**

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were not submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

# APPENDIX A - EMISSION INVENTORIES

Criteria PTE FOR LANDFILL CELL #2 (2039)					
Pollutant	PM <sub>2,5/10</sub>	NO,	SO,	CO	NMOC
Each flare (lb/hr)	0.03	0,09	0.00	0.10	0,11
Each Flare (T/yr)	0.15	0.38	0.02	0,45	0.47
Facility (6 flares) (lb/hr)	0.20	0,52	0.03	0.62	0.64
Facility (6 flares) (T/yr)	0.88	2,29	0.12	2.70	2,82
BRC	1,00	4,00	4.00	10.00	4.00
Exceed BRC?	No	No	No	No	No

Source: AP-42, Section 2.4 Municipal Solid Waste Landfills, Revised November

See Figure 1 for PM<sub>10</sub>, NO<sub>x</sub>, and CO calculations.

See Figure 2 for  $SO_X$  calculations. See Figure 3 for NMOC calculations.

NMOC modeled as Hexane with molecular weight 86.18 lb/lbmol.

HAP/TAP PTE FOR LANDFILL	CELL #2 (2039)	CELL #1 (2011)
Toxic Air Pollutant	PTE	PTE
	T/yr	T/yr
1,1,1Trichloroethane (methyl chloroform)	0,02	0.01
1,1,2,2Tetrachloroethane	0,05	0.03
1,1Dichloroethane (ethylidene dichloride)	0.07	0.04
1,1Dichloroethene (vinylidene chloride)	0,01	0.01
1,2Dichloroethane (ethylene dichloride)	0.02	0.01
1,2Dichloropropane (propylene dichloride)	0.01	0.01
2Propanol (isopropyl alcohol)	0,77	0.45
Acetone	0,11	0.07
Acrylonitrile	0,09	0.05
Benzene	0.04	0,03
Bromodichloromethane	0,13	0.08
Carbon disulfide	0.02	0.01
Carbon tetrachloride	0,01	0.01
Carbonyl sulfide	0,01	0.01
Chiorobenzene	0.01	0.01
Chlorodifluoromethane	0.03	0.02
Chloroethane (ethyl chloride)	0.03	0.02
Chloroform	0.01	0.01
Chloromethane	0.02	0.01
Dichlorobenzene ( for para isomer)	0.01	0.01
Dichlorodifluoromethane	0.50	0.29
Dichlorofluoromethane	0.07	0.04
Dichloromethane (methylene chloride)	0.31	0.18
Dimethyl sulfide (methyl sulfide)	0.13	0.08
Ethano!	0.32	0.19
Ethyl mercaptan (ethanethiol)	0.04	0.03
Ethylbenzene	0.13	0.08
Ethylene dibromide	0.01	0.01
Fluorotrichloromethane	0.03	0.02
Hexane	0.15	0.09
Hydrogen sulfide	0.32	0.19
Mercury (total)	0.0001	0.0001
Methyl ethyl ketone	0.13	0.08
Methyl isobutyl ketone	0.05	0.03
Methyl mercaptan	0.03	0.02
Pentane	0.07	0.04
Perchloroethylene (tetrachloroethylene)	0.16	0.10
Propane	0.13	0.08
1,2Dichloroethene	0.07	0.05
Toluene	0.92	0.54
Trichloroethylene (trichloroethene)	0.10	0.06
/inyl chloride	0.10	0.08
Kylenes	0.12	0.19
(1)		
Total HAP/		3.36
Max Individual HAP/ From LANDGEM emission inventories for maximum emis-		0,54

# APPENDIX B – FACILITY DRAFT COMMENTS

# The following comments were received from the facility on June 22, 2018:

## Facility Comment #1:

DEQ accurately reported in Table 1.1 of the PTC that six gas flares are intended to be installed in 2018 through 2020. However, General Provision 3.5 states that gas flare construction must be started within two years of the permit issue date. Therefore, Payette County assumes that DEQ acknowledges the installation of the landfill gas header and manifold complies with this condition, though final gas flare installation may not be completed until after 2020, pending waste volume receipt.

### **DEQ Response #1:**

No change has been made to the permit. With regard to General Provision 3.5, DEQ acknowledges that construction of the six flares will be completed in a phased process from 2018 through 2020, which would be taken into account when evaluating compliance with construction deadlines. As long as close communication with the Boise Regional Office is maintained, including providing timely notification of initiation of construction, suspension of construction, and start-up of each flare as required under General Provision 3.6, it is not anticipated that the construction schedule as proposed would be problematic. When requested in advance, extension of such deadlines by DEQ may also be considered when resulting from extenuating circumstances. Again, advance communication with the Boise Regional office is key in such circumstances.

## **Facility Comment #2:**

The wood chipper in Table 9 in the Statement of Basis is powered by a diesel engine and not a propane-fueled engine.

## **DEQ Response #2:**

Table 9 of the Statement of Basis has been updated as requested.



V# 2018-04140RECEIVED TC \$5,000.00 JUN 2 1 2018

DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A O PROGRAM

June 20, 2018

Morrie Lewis, Permit Writer Air Quality Division Idaho Department of Environmental Quality (DEQ) 1410 North Hilton Boise, Idaho 83706-1253

Subject:

Payette County Comments on Draft Permit to Construct No. P-2008.0078 Clay Peak Municipal Solid Waste Facility, Payette County, Payette, Idaho DEQ Facility Identification No. 075-00009 HECO Project No. PC16-0307P

Dear Mr. Lewis;

Having reviewed the Draft Permit to Construct (PTC) and Statement of Basis transmitted to Alan Scharbrough on June 8, 2018, we have only two comments:

- Comment #1: See Draft PTC page 9, Article 3.5: DEQ accurately reported in Table 1.1 in the PTC that six gas flares are intended to be installed in 2018 through 2020. However, Article 3.5 states that gas flare construction must be started within two years of the permit issue date. Therefore, Payette County assumes that DEQ acknowledges the installation of the landfill gas header and manifold complies with this condition, though final gas flare installation may not be completed until after 2020, pending waste volume receipt.
- Comment #2: See Statement of Basis, page 17, Table 9: The wood chipper is powered by a diesel engine and not a propane fueled engine.

Also, enclosed is the PTC processing fee of \$5,000 per your June 8, 2018 request to Alan Scharbrough. Please contact me at 208.642,3304 or <a href="mailto:basilt@hecoengineers.com">basilt@hecoengineers.com</a> if you have questions.

Sincerely.

HECO Engineers Basil Tupyi, P.E.

Cc: The Honorable Georgia Hanigan, Chairman of Payette County Commissioners Alan Scharbrough, Landfill Director Please make checks payable to: Department of Environmental Quality. Please write your permit number on the check and remit the fee and this information to the following:

Idaho Department of Environmental Quality Fiscal Office – Air Quality 1410 N. Hilton, Boise, ID 83706-1255

Amount Enclosed: \$ 5,000.00

Check No.: \_\_\_2018-04140

DEPARTMENT USE ONLY:			
Facility:	Clay Peak Municipal Solid Waste Landfill	Facility ID:	075-00009
Project	Addition of six landfill gas flares	Permit No.:	P-2008.0078 PROJ 61969
Fee Type	PTC Processing Fee	Fee Amount	\$ 5,000.00
Routing Ins	tructions: Copy Air Program upon receipt o	f fee.	-

# APPENDIX C - PROCESSING FEE

# PTC Processing Fee Calculation Worksheet

#### Instructions:

Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company: Clay Peak MSW Landfill

Address: 2560 Highway 52

City: Payette State: ID Zip Code: 83661

Facility Contact: Alan Scharbrough

Title: Landfill Supervisor AIRS No.: 075-00009

<i>I</i>	1	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
y	-	Did this permit require engineering analysis? Y/N
N		Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory				
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)	
NO <sub>x</sub>	2.3	0	2.3	
SO <sub>2</sub>	0.2	0	0.2	
co	2.8	0	2.8	
PM10	0.9	0	0.9	
voc	2.9	0	2.9	
TAPS/HAPS	5.7	0	5.7	
Total:	14.8	0	14.8	
Fee Due	\$ 5,000.00			

Comments:

Based on projected maximum potential emissions from 6 proposed flares at Cell #2 in 2039 (year projected to have maximum emissions).